

## SEQUENCE LISTING

## Sequence Listing

<110> Nara Institute of Science, Technology, Research Institute of Innovative Technology for the Earth and Kinki University

<120> Transgenic plants

<130> C01F1576

<160> 17

<210> 1

<211> 358

<212> PRT

<213> Spinacia oleracea L

<220> Fructose-1,6-bisphosphatase

<223>

<400> 1

Ala	Ala	Val	Gly	Glu	Ala	Ala	Thr	Glu	Thr	Lys	Ala	Arg	Thr	Arg	Ser
5								10						15	
Lys	Tyr	Glu	Ile	Glu	Thr	Leu	Thr	Gly	Trp	Leu	Leu	Lys	Gln	Glu	Met
20								25						30	
Ala	Gly	Val	Ile	Asp	Ala	Glu	Leu	Thr	Ile	Val	Leu	Ser	Ser	Ile	Ser
35								40						45	
Leu	Ala	Cys	Lys	Gln	Ile	Ala	Ser	Leu	Val	Gln	Arg	Ala	Gly	Ile	Ser
50								55						60	
Asn	Leu	Thr	Gly	Ile	Gln	Gly	Ala	Val	Asn	Ile	Gln	Gly	Glu	Asp	Gln
65					70				75					80	
Lys	Lys	Leu	Asp	Val	Val	Ser	Asn	Glu	Val	Phe	Ser	Ser	Cys	Leu	Arg
85								90						95	
Ser	Ser	Gly	Arg	Thr	Gly	Ile	Ile	Ala	Ser	Glu	Glu	Glu	Asp	Val	Pro
100								105						110	
Val	Ala	Val	Glu	Glu	Ser	Tyr	Ser	Gly	Asn	Tyr	Ile	Val	Val	Phe	Asp
115								120						125	
Pro	Leu	Asp	Gly	Ser	Ser	Asn	Ile	Asp	Ala	Ala	Val	Ser	Thr	Gly	Ser
130								135						140	
Ile	Phe	Gly	Ile	Tyr	Ser	Pro	Asn	Asp	Glu	Cys	Ile	Val	Asp	Ser	Asp
145					150				155					160	
His	Asp	Asp	Glu	Ser	Gln	Leu	Ser	Ala	Glu	Glu	Gln	Arg	Cys	Val	Val
165								170						175	
Asn	Val	Cys	Gln	Pro	Gly	Asp	Asn	Leu	Leu	Ala	Ala	Gly	Tyr	Cys	Met
180								185						190	
Tyr	Ser	Ser	Ser	Val	Ile	Phe	Val	Leu	Thr	Ile	Gly	Lys	Gly	Val	Tyr

195	200	205
Ala Phe Thr Leu Asp Pro Met Tyr Gly Glu Phe Val Leu Thr Ser Glu		
210	225	220
Lys Ile Gln Ile Pro Lys Ala Gly Lys Ile Tyr Ser Phe Asn Glu Gly		
225	230	235
Asn Tyr Lys Met Trp Asp Asp Lys Leu Lys Lys Tyr Met Asp Asp Leu		
245	250	255
Lys Glu Pro Gly Glu Ser Gln Lys Pro Tyr Ser Ser Arg Tyr Ile Gly		
260	265	270
Ser Leu Val Gly Asp Phe His Arg Thr Leu Leu Tyr Gly Gly Ile Tyr		
275	280	285
Gly Tyr Pro Arg Asp Ala Lys Ser Lys Asn Gly Lys Leu Arg Leu Leu		
290	295	300
Tyr Glu Cys Ala Pro Met Ser Phe Ile Val Glu Gln Ala Gly Gly Lys		
305	310	315
Gly Ser Asp Gly His Gln Arg Ile Leu Asp Ile Gln Pro Thr Glu Ile		
325	330	335
His Gln Arg Val Pro Leu Tyr Ile Gly Ser Val Glu Glu Val Glu Lys		
340	345	350
Leu Glu Lys Tyr Leu Ala		

〈210〉 2

211 1074

<212> DNA

〈213〉 *Spinacia oleracea* L.

## 220 Fructose-1,6-bisphosphatase

223

<400> 2

gcagccgtag gagaggcggc tacagaaaca aaggcaagga ctagaagtaa gtacgaaatt 60  
gaaacactaa caggctggct gcttaaaca gaaatggcag gtgttatgta tgctgaactt 120  
accatcgttc ttcttagcat ttcatggct tgtaaacaaa ttgcttcctt ggtcaacga 180  
gctggtattt ctaacttgc tggaaattcaa ggtgcgtca atatccaagg agaggatcag 240  
aagaaaacttg atgttgtctc caatgaggtg tttcgagct gcttggatc gagtggaga 300  
acaggaataa tagcatcaga agaagaggat gtaccagtgg cagtggaga gagttactct 360  
ggaaactata ttgttgtgtt tgatccactt gatggttcat ccaacattga tgcagctgtc 420  
tccactggtt ccatcttgg catttatagc cctaacgtg agtgcattgt tgactctgt 480  
cacgacgtg agtcacagct aagtgcagaa gaacagaggt gtgttgtgaa tggatgtcaa 540  
ccagggata acctattagc agcagggtat tgtatgtact caagctctgt tatcttcgtt 600  
cttacaattt gtaaagggtgt gtatgcattc acattagatc caatgtatgg tgaattcgta 660  
ctcacitcag agaaaatcca aatcccaaaa gctggagaaga tctattcatt caatgaaggt 720

aactacaaa	tgtggatga	taaattgaag	aagtacatgg	atgatcttaa	agagccagga	780
gagtcacaga	aaccgtactc	gtctcggtac	atagggagtt	tagttggga	ctttcataga	840
acacitit	atggtggat	ttatggttac	ccaagagaatg	caaagagtaa	gaatggaaa	900
ttgaggctt	tgtatgaatg	tgcacctatg	agtittattt	ttgaacaagc	tggtggtaaa	960
gtttctgatg	gtcatcaaag	aattcttgac	attcaaccca	ccgagataca	tcaacgtgtg	1020
ccactgtaca	tcggagatgt	ggaggaagta	gagaaattag	agaagtactt	agca	1074
<210> 3						
<211> 333						
<212> PRT						
<213> Spinacia oleracea L						
<220> Sedoheptulose-1,7-bisphosphatase						
<223>						
<400> 3						
Val Asn Lys Ala Lys Asn Ser Ser Leu Val Thr Lys Cys Glu Leu Gly						
5	10		15			
Asp Ser Leu Glu Glu Phe Leu Ala Lys Ala Thr Thr Asp Lys Gly Leu						
20	25		30			
Ile Arg Leu Met Met Cys Met Gly Glu Ala Leu Arg Thr Ile Gly Phe						
35	40		45			
Lys Val Arg Thr Ala Ser Cys Gly Gly Thr Gln Cys Val Asn Thr Phe						
50	55		60			
Gly Asp Glu Gln Leu Ala Ile Asp Val Leu Ala Asp Lys Leu Leu Phe						
65	70		75		80	
Glu Ala Leu Asn Tyr Ser His Phe Cys Lys Tyr Ala Cys Ser Glu Glu						
85	90		95			
Leu Pro Glu Leu Gln Asp Met Gly Gly Pro Val Asp Gly Gly Phe Ser						
100	105		110			
Val Ala Phe Asp Pro Leu Asp Gly Ser Ser Ile Val Asp Thr Asn Phe						
115	120		125			
Ser Val Gly Thr Ile Phe Gly Val Trp Pro Gly Asp Lys Leu Thr Gly						
130	135		140			
Val Thr Gly Arg Asp Gln Val Ala Ala Ala Met Gly Ile Tyr Gly Pro						
145	150		155		160	
Arg Thr Thr Tyr Val Leu Ala Leu Lys Asp Tyr Pro Gly Thr His Glu						
165	170		175			
Phe Leu Leu Asp Glu Gly Lys Trp Gln His Val Lys Glu Thr Thr						
180	185		190			
Glu Ile Asn Glu Gly Lys Leu Phe Cys Pro Gly Asn Leu Arg Ala Thr						
195	200		205			
Ser Asp Asn Ala Asp Tyr Ala Lys Leu Ile Gln Tyr Tyr Ile Lys Glu						

210	215	220													
Lys	Tyr	Thr	Leu	Arg	Tyr	Thr	Gly	Gly	Met	Val	Pro	Asp	Val	Asn	Gln
225	230	235	240												
Ile	Ile	Val	Lys	Glu	Lys	Gly	Ile	Phe	Thr	Asn	Val	Ile	Ser	Pro	Thr
245	250	255													
Ala	Lys	Ala	Lys	Leu	Arg	Leu	Leu	Phe	Glu	Val	Ala	Pro	Leu	Gly	Phe
260	265	270													
Leu	Ile	Glu	Lys	Ala	Gly	Gly	His	Ser	Ser	Glu	Gly	Thr	Lys	Ser	Val
275	280	285													
Leu	Asp	Ile	Glu	Val	Lys	Asn	Leu	Asp	Asp	Arg	Thr	Gln	Val	Ala	Tyr
290	295	300													
Gly	Ser	Leu	Asn	Glu	Ile	Ile	Arg	Phe	Glu	Lys	Thr	Leu	Tyr	Gly	Ser
305	310	315	320												
Ser	Arg	Leu	Glu	Glu	Pro	Val	Pro	Val	Gly	Ala	Ala	Ala			
325	330														

&lt;210&gt; 4

&lt;211&gt; 999

&lt;212&gt; DNA

<213> *Spinacia oleracea* L

&lt;220&gt; Sedoheptulose-1,7-bisphosphatase

&lt;223&gt;

&lt;400&gt; 4

gtgaacaagg	caaagaactc	ttcccttgta	accaaatgig	aacttgtga	cagttggag	60
gagtccctag	caaaggcaac	cacagataaa	gggctgatta	gattgatgat	gtgcattggga	120
gaagcattaa	ggaccattgg	ctttaaagtg	aggactgcii	catgtggtgg	aactcaatgt	180
gttaacacct	ttggagacga	acagcttgcc	attgatgtgc	ttgctgacaa	gcttctttc	240
gaggcattga	actattcaca	cttctgcaag	tatgcttgtt	cagaagaact	ccctgagctt	300
caagatatgg	gaggccccgt	tgtatggcgga	ttcagtgtag	cattgaccc	ccctgatgga	360
tccagcattg	tcgataccaa	tttctcagtt	gggaccatat	tcggggtttg	gccaggtgac	420
aagctaactg	gtgtAACAGG	cagagatcaa	gtggctgctg	caatggaaat	ttatggcct	480
aggactacii	atgttctcgc	tcttaaggac	taccctggca	cccatgaatt	tcttcttctt	540
gatgaaggaa	agtggcaaca	tgtgaaagaa	acaacagaaa	tcaatgaagg	aaaattgttc	600
tgtcctggaa	acttgagagc	cacttctgac	aatgctgatt	atgctaagct	gattcaatac	660
tatataaaag	agaaatacac	attgagatac	actggaggaa	tggttcctga	tgttaaccag	720
atcatagtga	aggagaaagg	tatattcaca	aatgtaatat	cacctacagc	caaggcaaag	780
ttgaggat	tgtttgaggt	agcicctcta	gggttcttga	ttgagaaggc	tggtggcac	840
agcagtgagg	gaaccaagtc	tgtgttggac	attgaagtca	aaaaccttga	tgacagaacc	900
caagttgcii	acggcicctt	gaacgagatc	atccgatttg	agaagacact	atacggatcc	960
tctaggctag	aggagccagt	tcctgttgg	gctgctgct			999

&lt;210&gt; 5

&lt;211&gt; 356

&lt;212&gt; PRT

&lt;213&gt; Synechococcus

<220> fructose-1,6-bisphosphatase/sedoheptulose-1,7-bisphosphatase from Synechococcus  
PCC 7942

&lt;223&gt;

&lt;400&gt; 5

Met Glu Lys Thr Ile Gly Leu Glu Ile Ile Glu Val Val Glu Gln Ala  
5 10 15  
Ala Ile Ala Ser Ala Arg Leu Met Gly Lys Gly Glu Lys Asn Glu Ala  
20 25 30  
Asp Arg Val Ala Val Glu Ala Met Arg Val Arg Met Asn Gln Val Glu  
35 40 45  
Met Leu Gly Arg Ile Val Ile Gly Glu Gly Glu Arg Asp Glu Ala Pro  
50 55 60  
Met Leu Tyr Ile Gly Glu Glu Val Gly Ile Tyr Arg Asp Ala Asp Lys  
65 70 75 80  
Arg Ala Gly Val Pro Ala Gly Lys Leu Val Glu Ile Asp Ile Ala Val  
85 90 95  
Asp Pro Cys Glu Gly Thr Asn Leu Cys Ala Tyr Gly Gln Pro Gly Ser  
100 105 110  
Met Ala Val Leu Ala Ile Ser Glu Lys Gly Leu Phe Ala Ala Pro  
115 120 125  
Asp Phe Tyr Met Lys Lys Leu Ala Ala Pro Pro Ala Ala Lys Gly Lys  
130 135 140  
Glu Thr Ser Ile Lys Ser Ala Thr Glu Asn Leu Lys Ile Leu Ser Glu  
145 150 155 160  
Cys Leu Asp Arg Ala Ile Asp Glu Leu Val Val Val Val Met Asp Arg  
165 170 175  
Pro Arg His Lys Glu Leu Ile Gln Glu Ile Arg Gln Ala Gly Ala Arg  
180 185 190  
Val Arg Leu Ile Ser Asp Gly Asp Val Ser Ala Ala Ile Ser Cys Gly  
195 200 205  
Phe Ala Gly Thr Asn Thr His Ala Leu Met Gly Ile Gly Ala Ala Pro  
210 215 220  
Glu Gly Val Ile Ser Ala Ala Ala Met Arg Cys Leu Gly Gly His Phe  
225 230 235 240  
Gln Gly Gln Leu Ile Tyr Asp Pro Glu Val Val Lys Thr Gly Leu Ile  
245 250 255  
Gly Glu Ser Arg Glu Ser Asn Ile Ala Arg Leu Gln Glu Met Gly Ile

260	265	270
Thr Asp Pro Asp Arg Val Tyr Asp Ala Asn Glu Leu Ala Ser Gly Gln		
275	280	285
Glu Val Leu Phe Ala Ala Cys Gly Ile Thr Pro Gly Leu Leu Met Glu		
290	295	300
Gly Val Arg Phe Phe Lys Gly Gly Ala Arg Thr Gln Ser Leu Val Ile		
305	310	315
Ser Ser Gln Ser Arg Thr Ala Arg Phe Val Asp Thr Val His Met Phe		
325	330	335
Asp Asp Val Lys Thr Val Ser Leu Pro Leu Ile Pro Asp Pro Lys Trp		
340	345	350
Arg Pro Glu Arg		
355		

&lt;210&gt; 6

&lt;211&gt; 1350

&lt;212&gt; DNA

&lt;213&gt; Synechococcus

&lt;220&gt; fructose-1,6-bisphosphatase/sedoheptulose-1,7-bisphosphatase from Synechococcus PCC 7942

&lt;400&gt; 6

atcgcaacta aagccagaga tgtgaggagg ggatccggcc tttggtagac tcaactgttg	60
gaatccccag aagcaatcat ccgttaaggag tcaggacggc gtggagaaga cgatcggtct	120
cgagattatt gaagtgtcg agcaggcagc gatgcctcg gcccgcctga tggcaaaagg	180
cgaaaagaat gaagccgttc gcgtcgactt agaagcgatg cgggtgcgga tgaaccaagt	240
ggaaatgctg ggccgcattcg tcatcggtga aggcgagcgc gacgaagcac cgtatgcata	300
tatcggtgaa gaagtggca tctaccgcga tgcagacaag cgggtggcg taccggctgg	360
caagctggtg gaaatcgaca tcgcccgttga cccctgcgaa ggcaccaacc tctgcgccta	420
cggtcagccc ggctcgatgg cagtttggc catctccgag aaaggcggcc tttttgcagc	480
tcccgacttc tacatgaaga aactggctgc acccccagct gccaaaggca aagagacatc	540
aataaagtcc gcgaccgaaa acctgaaaat tctctcgaa ttttcgatc ggcgcattcg	600
tgaatttggtg gtcgiggtca tggatcgatcc ccgccacaaa gagctaatcc aagagatccg	660
ccaagcgggt gcccgcgtcc gtcgtatcg cgtatggtgc gttttcgcccg cgtatccgt	720
cggttttgtt ggcaccaaca cccacgcctt gatggcattc ggtgcagctc ccgaggggt	780
gattttcggca gcagcaatgc ttgcgcgtgg cgggcacttc caaggccagc tgcgtatcg	840
cccagaatgt gtcaaaaaccg gcctgtatcg tggatcgatcc gagagcaaca tgcgtcgct	900
gcaagaaaatg ggcattaccg atcccgtatcg ttttcgatcc gcgaaacgaa tggcttcgg	960
tcaagaatgt ctgtttgcgg ttgcgtatcc caccggggc ttgcgtatgg aaggcgtgcg	1020
ttttttcaaa ggcggcgctc gcacccagag ttgcgtatcc tccagccagt cacggacggc	1080
tgcgttcgtt gacaccgttc acatgttgcg acggtttagcc tggccgttaat	1140

tcctgatccc aaatggcgcc	cgagcggtaaacgggtat	agctcgatcg cttcggtcg	1200
tgttttcag cgaatccatt	tgcgatcgctttcaaacc	tttttcgtcaaccttctt	1260
aaacggcctc atgcatctcg	cagtgtcggtcagccatc	ggacagcaccgg	1312
<210> 7			
<211> 133			
<212> DNA			
<213> Nicotiana tabacum			
<223> psbA promoter			
<400> 7			
agcttctaca tacaccttgg	ttgacacgag tatataa	atgttataact gttgaataac	60
aaggcattcca ttttctattt	tgattttagaaaactatgt	tgcttgggag tccctgtatga	120
ttaaataaac caa			133
<210> 8			
<211> 159			
<212> DNA			
<213> Nicotiana tabacum			
<223> rps16 terminator			
<400> 8			
agcttgaat tcaatttaagg	aaataaaatta aggaaataca	aaaagggggg tagtcat	60
tatataactt tggatgactt	ttctcttcta ttttttgtat	ttccctccct ttccttttct	120
ttttgtattt ttttatcatt	gcttccatttgaattactag		159
<210> 9			
<211> 805			
<212> DNA			
<213> Escherichia coli			
<223> aadA			
<400> 9			
gatccatggc tcgtgaagcg	gttatcgccg aagtatcaac	tcaactatca gaggtat	60
gcgtcatcgaa	gcgcatttc gaaccgacgt	tgctggccgt acatttgtac	120
tggatggcgg	ccatggcca cacatgtata	ttgatttgct ggttacggtg	180
ttgtatgaaac	aacgcggcga gctttatca	acgaccctttt ggaaacttgc	240
gagagagcga	gattctccgc gctgtttagaag	tcaccattgt tgcacgcac	300
cgtggcgtta	tccatgttgcgactgc	aatttggaga atggcagcgc	360
ttgcaggtat	tttgcgatcg acattgtatct	ggctatcttg ctgacaaaag	420
caagagaaca	tttgcgatcg aatgttggaga	tttgcgatcg aatgttggaga	480
tttgcgatcg	tttgcgatcg aatgttggaga	tttgcgatcg aatgttggaga	540
tttgcgatcg	tttgcgatcg aatgttggaga	tttgcgatcg aatgttggaga	600
tttgcgatcg	tttgcgatcg aatgttggaga	tttgcgatcg aatgttggaga	660
tttgcgatcg	tttgcgatcg aatgttggaga	tttgcgatcg aatgttggaga	720

gcttggcctc	gchgccccat	cagtggaaag	aatttgtcca	ctacgtgaaa	ggcgagatca	780
ctaaggtagt	tggccaaataa	ctgca				805
<210> 10						
<211> 4591						
<212> DNA						
<213> Artificial sequence						
<223> pLD6						
<400> 10						
gtggcacttt	tcggggaaat	gtgcgcggaa	cccccatttg	tttattttc	taaatacatt	60
caaataatgt	tccgctcatg	agacaataac	cctgataaaat	gcttcaataa	tattgaaaaa	120
ggaagagtagt	gagtattcaa	cattccgtg	tcgcccattat	tcctttttt	gcggcatttt	180
gccttcctgt	ttttgctcac	ccagaaacgc	tggtaaaagt	aaaagatgct	gaagatcagli	240
tgggtgcacg	agtgggttac	atcgaactgg	atctcaacag	cggttaagatc	ctttagagtt	300
ttcgccccga	agaacgtttt	ccaatgtga	gcacttttaa	agttcgtca	tgtggcgcgg	360
tattatcccg	tattgacgcc	gggcaagagc	aactcggtgc	ccgcatacac	tatttcaga	420
atgacttggt	tgagttactca	ccagtcacag	aaaagcatct	tacggatggc	atgacagtaa	480
gagaattatg	cagtgtgcc	ataaccatga	gtgataacac	tgcggccaac	ttacttctga	540
caacgatcgg	aggaccgaag	gagctaaccg	cttttttgc	caacatgggg	gatcatgtaa	600
ctcgccctga	tcgttggaa	ccggagctga	atgaagccat	accaaacgac	gagcgtgaca	660
ccacgatgcc	tgttagcaatg	gcaacaacgt	tgcgcaaact	attaactggc	gaactactta	720
cictagcttc	ccggcaacaa	ttaatagact	ggatggaggc	ggataaagt	gcaggaccac	780
ttctgcgctc	ggcccttccg	gtggcttgtt	ttattgtga	taaatctgga	gccggtgagc	840
gtgggtctcg	cgtatcatt	gcagcactgg	ggccagatgg	taagccctcc	cgtatcgtag	900
ttatctacac	gacggggagt	caggcaacta	tggatgaacg	aaatagacag	atcgttgaga	960
taggtgcctc	actgatttaag	cattggtaac	tgtcagacca	agtttactca	tatatacttt	1020
agattgattt	aaaacttcat	ttttatita	aaaggatcta	ggtgaagatc	ctttttgata	1080
atctcatgac	caaaatccct	taacgtgagt	tttcgttcca	ctgagcgtca	gacccctgat	1140
aaaagatcaa	aggatcttct	tgagatcctt	tttttctgcg	cgtaatctgc	tgcttgcaaa	1200
caaaaaacc	accgctacca	gcgggtggtt	ttttggcgg	tcaagagcta	ccaactctt	1260
ttccgaaggt	aactggcttc	agcagagcgc	agataccaa	tactgtcctt	ctagtgttagc	1320
cgtagttagg	ccaccacttc	aagaactctg	tagcaccgcc	tacataccctc	gctctgtcaa	1380
tcctgttacc	agtggctgct	gccagtggcg	ataagtctgt	tcttaccggg	ttggactcaa	1440
gacgatagtt	accggataag	gcgcagcgg	cgggtgaac	ggggggttcg	tgcacacacgc	1500
ccagcttgg	gcgaacgacc	tacaccgaac	tgagatactt	acagcgtgag	ctatgagaaa	1560
gcgcacgc	tcccgaaggg	agaaaggcgg	acaggtatcc	ggtaagcggc	agggtcgaa	1620
caggagagcg	cacgagggag	tttccagggg	gaaacgcctg	gtatcttat	agtctgtcg	1680
ggtttcgcca	cctctgactt	gagcgtcgat	ttttgtgtat	ctcggtcagg	gggcggagcc	1740
tatgaaaaaa	cgccagcaac	gcggcccttt	tacggttcct	ggccctttgc	tggcttttg	1800
ctcacatgtt	ttttccctgct	ttatcccctg	attctgtgga	taaccgtatt	accgcctttg	1860
agtgagctga	taccgcgcgc	cgcagccgaa	cgaccgagcg	cagcgagtca	gtgagcgagg	1920

aagcggaga	gcccata	cgaaaccgc	ctccccgc	gcgtggccg	attattaat	1980
gcagctggca	cgacaggtt	ccgactgga	aagcggcag	tgagcgcaac	gcaattaatg	2040
ttagtttagt	cactcattag	gcacccagg	cttacactt	tatgtttccg	gctcgatgt	2100
tgtgtggaa	tgtgagcgga	taacaattt	acacaggaaa	cagctatgac	catgattacg	2160
ccaagcgcgc	aattaaccct	cactaaaggg	aacaaaagct	ggagctccac	cgcggtggcg	2220
gccgcctcag	tggatitgc	tcccccgcg	tcgttcaatg	agaatggata	agaggctcg	2280
gggattgacg	tgagggggca	gggatggct	tatitctggg	agcgaactcc	ggcgaattt	2340
gaagcgcttg	gatacagtt	tagggaggga	tccatggctc	gtgaagcggt	tatgcccga	2400
gtatcaac	aactatcaga	ggtagttggc	gtcatcgagc	gccatctcg	accgacgttg	2460
ctggccgtac	atttgtacgg	ctccgcagtg	gtggcggcc	tgaagccaca	cagtatatt	2520
gatttgctgg	ttacggtgac	cgttaaggctt	gtgaaaacaa	cgcggcgagc	tttgcataac	2580
gacctttgg	aaacttcggc	ttcccccgt	gagagcgaga	ttctccgcgc	tgtagaagtc	2640
accattgttg	tgcacgacga	catcattccg	tggcgttatc	cagctaagcg	cgaactgcaa	2700
tttggagaat	ggcagcgcaa	tgacattctt	gcaggtatct	tcgagccagc	cacgatcgac	2760
attgatctgg	ctatcttgct	gacaaaagca	agagaacata	gcgttgcctt	ggttagtcca	2820
gcggcggagg	aactcttga	tccggttcct	gaacaggatc	tatitgaggc	gctaaatgaa	2880
acctaaccgc	taatggaaac	gccgcccgc	tgggtggcg	atgagcgaaa	tgtatgtctt	2940
acgttgtccc	gcatttgta	cagcgcagta	accggcaaaa	tgcgcccga	ggatgtcgct	3000
gccgactggg	caatggagcg	cctgccggcc	cagtatcagc	ccgtcatact	tgaagctaga	3060
caggcttatac	ttggacaaga	agaagatcgc	ttggccctcgc	gcmcagatca	gttgaaagaa	3120
tttgcact	acgtgaaagg	cgagatcact	aaggtatgt	gcaaaataact	gcaggatcct	3180
ggcctagtc	ataggaggtt	ttgaaaagaa	aggagcaata	atcattttct	tgttctatca	3240
agagggtgt	attgtccctt	tcttttttc	tttttattta	tttacttagta	tttacttac	3300
atagactttt	ttgtttacat	tatagaaaaaa	gaaggagagg	ttatttctt	gcatttattc	3360
atgattgagt	attctatttt	gatttgtat	ttgtttaaaa	ttgtagaaat	agaacttgtt	3420
tctttcttg	ctaattgtac	tatatctttt	tgattttttt	tttccaaaaaa	aaaatcaaata	3480
tttgacttct	tcttatctct	tatctttgaa	tatctcttat	ctttgaaata	ataatatcat	3540
tgaaataaga	aagaagagct	atattcgaag	cttctacata	cacctggtt	gacacgagta	3600
tataagtcat	gttataactgt	tgaataacaa	gccttccatt	ttctattttt	atttgtagaa	3660
aactagtgt	cttgggagtc	cctgtatgatt	aaataaacca	agatctaaaa	ggagaaatta	3720
agcatgtct	agatcgatga	attcgccctt	ccgaagcttg	aaattcaatt	aaggaaataa	3780
attaaggaaa	tacaaaagg	gggtagtca	tttgtatata	actttgtatg	actttctct	3840
tctattttt	tgtatttcctt	ccctttcctt	ttctattttt	attttttat	catgtttcc	3900
attgaattac	tagtcacct	cgaggggggg	cccggtaccc	aattcgccct	atagttagtc	3960
gtattacgcg	cgctcactgg	ccgtcgttt	acaacgtcg	gactggaaa	accctggcgt	4020
tacccaacit	aatcgccctg	cagcacatcc	ccctttcgcc	agctggcgta	atagcgaaga	4080
ggcccgacc	gatcgccctt	cccaacagtt	gcgcagccgt	aatggcgaat	gggacgcgcc	4140
cgttagcggc	gcattaagcg	cggcgggtgt	ggtggttacg	cgcagcgta	ccgctacact	4200
tgccagcggcc	ctagcgcccg	ctcctttcgc	tttctccct	tcctttctcg	ccacgttcgc	4260
cggctttccc	cgtcaagctc	taaatcgggg	gttccctta	gggttccgat	tttgtcttt	4320

acggcaccc gaccccaaaa aacttgatta gggtgatgg tcaacgtatg ggccatcgcc 4380  
ctgatagacg gttttcgcc ctttgacgtt ggagtcacg ttctttaata gtggactctt 4440  
gttccaaact ggaacaacac tcaaccctat ctggcttat tctttgatt tataaggat 4500  
tttgcgatt tcggctatt ggtaaaaaaa tgagctgatt taacaaaaat ttaacgcgaa 4560  
tttaacaaa atattaacgc ttacaatttt g 4591

<210> 11  
<211> 51  
<212> DNA  
<213> Artificial sequence  
<223> multi-cloning regions  
<400> 11  
ccaagatcta aaaggagaaa ttaagcatgc tctagatcga tgaattcgcc c 51

<210> 12  
<211> 142  
<212> DNA  
<213> Nicotiana tabacum  
<223> rrn promoter  
<400> 12  
ctagttggat ttgcctcccc gccgtcgttc aatgagaatg gataagaggc tcgtgggatt 60  
gacgtgaggg ggcagggatg gctatatttc tggagcga ctccggcga atttgaagcg 120  
cttggataca gtgttaggaa gg 142

<210> 13  
<211> 390  
<212> DNA  
<213> Nicotiana tabacum  
<223> psbA terminator  
<400> 13  
gatccgtggcc tagtctatag gaggttttga aaagaaagga gcaataatca tttcttgtt 60  
ctatcaagag ggtgttatttgc ttcctttttttt tatttatttttta ctgtttttt 120  
acttacatag actttttgtt ttacattata gaaaaagaag gagaggttat tttcttgcat 180  
ttattcatga ttgagtatttgc tattttgatt ttgttattttgtttaaaaattgtt agaaatagaa 240  
cttggtttctc ttcttgctaa tgtaactata tctttttgtat tttttttttc caaaaaaaaaa 300  
tcaaatttttgc acttcttctt atctcttatac tttgaatatac tcttatactt gaaataataa 360  
tatcatggaa ataagaaaga agagctataat 390

<210> 14  
<211> 5581  
<212> DNA  
<213> Artificial sequence  
<223> pLD200  
<400> 14

tcgcgcgtt	cggatgac	ggtggaaacc	tctgacacat	gcagctcccg	gagacggtca	60
cagcttgtct	gtaagcggat	gccgggagca	gacaagcccg	tcagggcgcg	tcagcgggtg	120
ttggcgggtg	tcggggctgg	citaactatg	cgccatcaga	gcagattgt	ctgagagtgc	180
accataatgcg	gtgtgaaata	ccgcacagat	gcgtiaaggag	aaaataccgc	atcaggcgcc	240
attcgccatt	caggctgcgc	aactgttggg	aaggcgatc	ggtgcgggcc	tcttcgtat	300
tacgccagct	ggcgaaaggg	ggtgtgcgt	caaggcgatt	aagtgggt	acgccagggt	360
tttcccgatc	acgacgttgt	aaaacgacgg	ccagtgaatt	catgagttgt	agggagggat	420
ttatgtcacc	acaaacagag	actaaagcaa	gtgttggatt	caaagctgtt	gttaaagagt	480
acaaatttgc	ttattatact	ccgtgatacc	aaaccaagga	tactgtatata	ttggcagcat	540
tccgagtaac	tcctcaacct	ggagttccac	ctgaagaagc	aggggccg	gtagctgccg	600
aatcttctac	tggtacatgg	acaactgtat	ggaccgatgg	acttaccagc	cttgcgtt	660
acaaaggcg	atgctaccgc	atcgagcgt	ttgttggaga	aaaagatcaa	tatattgtt	720
atgtagctt	ccctttagac	cttttgaag	aaggttctgt	taccaacatg	tttacttcca	780
ttgttagtaa	cgtatttggg	ttcaaagccc	tgcgctct	acgtctggaa	gttgcgaa	840
tccctctgc	ttatgttaaa	acttccaag	gtccgcctca	tggatccaa	gttgcgaa	900
ataaaatttga	caagtatgtt	cgtccctgt	tggatgtac	tattaaacct	aaatttgggt	960
tatctgctaa	aaactacggt	agagccgtt	atgaatgtct	tcgcgttgg	cttgcatttt	1020
ctaaagatga	tgagaacgt	aactcacaac	cattatgcg	ttggagagat	cgtttctt	1080
tttgcgcga	agcactttat	aaagcacagg	ctgaaacagg	tgaaatcaa	ggcattact	1140
tgaatgctac	tgcaggtaca	tgcgaagaaa	tgtcaaaag	agctgttatt	gttagagaat	1200
tggcggttcc	gatgtaatg	catgactact	taacgggggg	attcaccgca	aatactagct	1260
tggcicatta	ttgccgagat	aatggctac	tttccat	ccaccgtgca	atgcgtgcgg	1320
ttattgtatag	acagaagaat	catggatcc	acttccgggt	attgcaaaa	gcgttacgt	1380
tgtctgggtt	agatcatatt	cactctggta	ccgttagttag	taaacttga	ggtgaaagag	1440
acataactt	ggcctttgtt	gatttactgc	gtgtatgtt	tgttgaacaa	gtcgttgc	1500
gcggtattt	tttactcaa	gattgggtct	cttaccagg	tgttctaccc	giggcttcag	1560
gaggatattca	cgtttggcat	atgctgc	tgaccgagat	cttggggat	gattccgtac	1620
tcagttcgg	tggaggaact	ttggacatc	cttgggtaa	tgcgcaggt	gccgttgc	1680
atcgagtagc	tctagaagca	tgtttaaaag	ctcgtaatga	aggacgtgt	cttgcgttgc	1740
aaggtaatga	aatttttcgc	gaggcttgca	aatggagccc	ggaacttagct	gttgcgttgc	1800
aagtatggaa	agagatcgta	tttatttttgc	cagcagtgg	cgttttggat	aagtaaaaac	1860
agtagacatt	agcagataaa	tttgcaggaa	ataaagaagg	ataaggagaa	agaactcaag	1920
taattatcct	tcgttcttt	aattgtatgc	caattaaact	cggcccaatc	tttactaaa	1980
aggattgagc	cgaatacaac	aaagattctt	ttgcataat	tttgcataag	tatatactt	2040
ccttagatata	caagatttgc	aataaaaaat	ctagaaaact	aaatcaaaat	ctaaagactca	2100
aatctttctt	ttgttgtctt	ggatcgccgc	cgcgttagcg	tcgacgttcc	ttaggatgg	2160
tatattcttt	tctatccgt	agtttgcgt	ttccctgaat	caagccaaat	atcacacc	2220
tttctaccca	tccgtatata	tgtcccttt	gttccgtgtt	gaaatagaac	cttaattt	2280
tacttatttt	tttattaaat	tttagatttgc	tttagtgcata	gatatttagta	tttagacgaga	2340
ttttacgaaa	caattat	tttatttctt	tataggagag	gacaaatctc	tttttcgtat	2400



ccagttataa gtttgcgcaa cgttgttgcc attgtacag gcatcggtt gtcacgcctcg	4860
tcgtttggta tggcttcatt cagctccgtt tcccaacgtt caaggcgagt tacatgtatcc	4920
cccatgttgtt gcaaaaaagc ggttagctcc ttccgtccctc cgatcggtgt cagaagtaag	4980
ttggccgcag tggatcact catgttatg gcagcactgc ataattctt tactgtcatg	5040
ccatccgtaa gatgttttc tgtgactgtt gagtactcaa ccaagtcatt ctgagaatag	5100
tgtatgcggc gaccgagtttgc ctcttgcccg gcgtcaatac gggataatac cgccgcacat	5160
agcagaactt taaaagtgtt catcatggaa aaacgttctt cggggcgaaa actctcaagg	5220
atcttaccgc tggatcactc cagttcgatg taaccactc gtgcacccaa ctgtatctca	5280
gcatcttttta ctttcaccag cgtttctggg tgagcaaaaa caggaaggca aaatgccgca	5340
aaaaaggaa taagggcgcac acggaaatgt tgaatactca tactcttcct tttcaataat	5400
tattgaagca ttatcaggg ttatgtctc atgagcggat acatatttga atgtatttag	5460
aaaaataaac aaataggggt tccgcgcaca ttcccccga aagtgccacc tgacgtctaa	5520
gaaaccattta ttatcatgac attaacctat aaaaataggc gtatcacgag gccctttcg	5580
c	5581

<210> 15

<211> 1434

<212> DNA

<213> Nicotiana tabacum

<223> rbcL

<400> 15

atgtcaccac aaacagagac taaagcaagt gttggattca aagctgggtt taaagagtac	60
aaattgactt attatactcc tggatccaa accaaggat actgtatattt ggcagcatc	120
cgagtaactc ctcaaccctgg agttccaccc tggatccaa accaaggat actgtatattt ggcagcatc	180
tcttctactg gtacatggac aactgtatgg accgtatggac ttaccagcct tggatccaa	240
aaagggcgat gctaccgcattt cggatccaa accaaggat actgtatattt ggcagcatc	300
gtatgttacc cttagaccc ttggatccaa accaaggat actgtatattt ggcagcatc	360
gtatgttacc cttagaccc ttggatccaa accaaggat actgtatattt ggcagcatc	420
cctccctgtttt atgttaaaac ttcccaaggtt cggatccaa accaaggat actgtatattt ggcagcatc	480
aaatgttacc tggatccaa accaaggat actgtatattt ggcagcatc	540
tctgttacc tggatccaa accaaggat actgtatattt ggcagcatc	600
aaatgttacc tggatccaa accaaggat actgtatattt ggcagcatc	660
tgtgttacc tggatccaa accaaggat actgtatattt ggcagcatc	720
aatgttacc tggatccaa accaaggat actgtatattt ggcagcatc	780
ggcggtccgtt tggatccaa accaaggat actgtatattt ggcagcatc	840
gttattttttt gctttttttt tggatccaa accaaggat actgtatattt ggcagcatc	900
attgtatccac tggatccaa accaaggat actgtatattt ggcagcatc	960
tctgttacc tggatccaa accaaggat actgtatattt ggcagcatc	1020
ataactttttt gctttttttt tggatccaa accaaggat actgtatattt ggcagcatc	1080
ggtattttttt tggatccaa accaaggat actgtatattt ggcagcatc	1140
gttattttttt gctttttttt tggatccaa accaaggat actgtatattt ggcagcatc	1200

cagttcggtg gaggaactt aggacatcct tgggttaatg cgccagggtgc cgtagcta	1260
cgagtagctc tagaagcatg tgtaaaagct cgtaatgaag gacgigatct tgctcaggaa	1320
ggtaatgaaa ttatcgca ggc ttgcaaa tggagccgg aactagctgc tgcttgtgaa	1380
gtatggaaag agatcgatt taatttgca gcagtggacg ttttgataa gtaa	1434
<210> 16	
<211> 705	
<212> DNA	
<213> Nicotiana tabacum	
<223> accD	
<400> 16	
aatgactatt catctattgt attttcatgc aaataggggg caagaaaact ctatggaaag	60
atggtggttt aattcgatgt tgttttaagaa ggagttcgaa cgcagggttg ggctaaataa	120
atcaatgggc agtcttggtc ctattgaaaa taccaatgaa gatccaaatc gaaaagtgaa	180
aaacattcat agttggagga atcgtgacaa ttctagttgc agtaatgttg attatttatt	240
cggcgtaaaa gacattcgga atttcatctc tgcgttgcact ttttagttt gtgtataggaa	300
tggagacagt tattccaaatc attttgatcat tggaaatcat atttttggaa ttgacaacga	360
tcattcttt ctgagtgaac tagaaagttc tttttatgt tgcgttgcact cgaattatcg	420
gaataatgga tttagggcg aagatcccta ctataattct tacatgtatg atactcaata	480
tagttggaat aatcacatta atagttgcattt tgcgttgcact cttcgttgcact aaatctgtat	540
agatacttcc attataagtgtt gtagtggagaa ttacgggttgcact agttacattt atagggccgt	600
tttgtgggtt gaaagtgcgtt gaaagtgcgtt aatgtgttgcact aaacgagggtt tccgttgcact gaaatcgac	660
gaagggcagt gatttaacta taagagaaag ttctaatgttgcact ctcgttgcact	705
<210> 17	
<211> 21	
<212> DNA	
<213> Artificial sequence	
<223> polylinker	
<400> 17	
cgcgcccgcg ctagcgatcgac	21
<210> 18	
<211> 7	
<212> DNA	
<213> Artificial sequence	
<223> Shine-Dalgarno Sequence	
<400> 18	
aggaggu	7